

From glowbugs@theporch.com Thu Oct 24 11:27:43 1996  
Return-Path: <glowbugs@theporch.com>  
Received: from uro (localhost.theporch.com [127.0.0.1]) by uro.theporch.com  
(8.8.2/AUX-3.1.1) with SMTP id LAA19057; Thu, 24 Oct 1996 11:12:03 -0500 (CDT)  
Date: Thu, 24 Oct 1996 11:12:03 -0500 (CDT)  
Message-Id: <199610241612.LAA19057@uro.theporch.com>  
Errors-To: conard@tntech.campus.mci.net  
Reply-To: glowbugs@theporch.com  
Originator: glowbugs@theporch.com  
Sender: glowbugs@theporch.com  
Precedence: bulk  
From: glowbugs@theporch.com  
To: Multiple recipients of list <glowbugs@theporch.com>  
Subject: GLOWBUGS digest 330  
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas  
X-Comment: Please send list server requests to listproc@theporch.com  
Status: 0

#### GLOWBUGS Digest 330

Topics covered in this issue include:

- 1) QTC NIL FM SAQ ANI OTR OP CPI SAQ IMI  
by rdkeys@csemail.cropsci.ncsu.edu
- 2) Unknown valve types  
by dsibie@hvssa01.nl.lucnet.com
- 3) "My Old Valve Days" by G3XLQ  
by "Brian Carling" <bry@mnsinc.com>
- 4) Re: SAQ Test on 17.2 kHz.  
by "Brian Carling" <bry@mnsinc.com>
- 5) Recieving tubes for transmitting?  
by bratcher@worldnet.att.net (Robert M. Bratcher Jr.)
- 6) A lesson learned...  
by jeffd@coriolis.com (Jeff Duntemann)
- 7) Re: Recieving tubes for transmitting?  
by rdkeys@csemail.cropsci.ncsu.edu
- 8) Re: QTC NIL FM SAQ ANI OTR OP CPI SAQ IMI  
by "Gregory S. Raven" <gsraven@cris.com>
- 9) Re: Recieving tubes for transmitting?  
by "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>
- 10) Re: Recieving tubes for transmitting?  
by "Brian Carling" <bry@mnsinc.com>
- 11) Re: LF'ing  
by W4AOS@aol.com
- 12) That 6L6 tube  
by "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>
- 13) Re: Where is it?? (fwd) (6T9er)  
by toyboat@freenet.edmonton.ab.ca

- 14) RCA PARTS LIST UPDATE  
by "Robert Fowle (KC8DBC)" <hammarlund@jacksonmi.com>
- 15) Re: Recieving tubes for transmitting?  
by rdkeys@csemail.cropsci.ncsu.edu
- 16) Re: Recieving tubes for transmitting?  
by rdkeys@csemail.cropsci.ncsu.edu
- 17) Re: Recieving tubes for transmitting?  
by rdkeys@csemail.cropsci.ncsu.edu
- 18) Homebrew Mailing Lists  
by Jim Barnes <barnes29@chelsea.ios.com>

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Date: Wed, 23 Oct 1996 12:59:08 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: glowbugs@theporch.com, boatanchors@theporch.com  
Cc: rdkeys@csemail.cropsci.ncsu.edu ()  
Subject: QTC NIL FM SAQ ANI OTR OP CPI SAQ IMI  
Message-ID: <9610231659.AA102483@csemail.cropsci.ncsu.edu>

Well nil luck here on the SAQ copy either, although on 600M KFS was QSA 4 in NC so the mf/lf band was open. Several of the digital stns were eminently loud here even amid the misc RFI. Can anyone check with the fellows at Grimeton on in the Swedish ham community to see if there were problems rotating that big baby up to speed?

We Rrrreeaaaallllyy dooooooo need to hear that machine purr one more time. After all, it is the world's largest boatanchor.

73/ZUT DE NA4G/Bob UP

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Date: Wed, 23 Oct 96 17:06:12 +0200  
From: dsibie@hvssa01.nl.lucent.com  
To: glowbugs@theporch.com  
Cc: sibie@lucent.com  
Subject: Unknown valve types  
Message-ID: <9610231506.AA26068@hvssa01.nl.lucent.com>

Hello fellow glowbuggers,

Yesterday I acquired a box filled with ancient fire-FETS on an auction. The poor critters were threatened with a hammer, so I saved their priceless lives. But now I am facing a box filled with completely unknown types of tubes. If someone from this illustrious college can enlighten me please do so.

The following types are in the box:

- RC12P35, manufactured by Telefunken
- KTW61, manufactured and patented in England
- KTW62, manufactured and patented in England

The RC12P35 have two connectors at the top (looks a bit like little ears)  
the foot is ceramic and covered with copper.

All tubes probably date from WWII.

I really hope to hear something. Are they useable or just fit for a museum?

72 de Dirk, PA3GNR

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Date: Wed, 23 Oct 1996 11:20:15 +0000  
From: "Brian Carling" <bry@mnsinc.com>  
To: glowbugs@theporch.com  
Subject: "My Old Valve Days" by G3XLQ  
Message-ID: <199610231817.0AA24621@user2.mnsinc.com>

Gentlemen of the hollow state ether emissions:

I recently met, through the Internet, ANOTHER person whom I hadn't seen in some 32 years, David Gordon-Smith, G3UUR who was a contemporary of mine around 1963-64 when I was learning more about amateur radio and the following is a reply I sent to him that details SOME of my valve activities (that's tubes for you colonial types!) from those old days of my teenage years.

I saved a copy because I had promised some of the GLOWBUGS chaps here that I would eventually let you all read about the history too!

So here it is. Not much detail yet. Maybe I will edit it later and fill in the blanks as my memory gets jogged and I recall other bits and pieces, such as the 6J6 5 watt oscillator on 27 MHz RC band that I built, and the 38 sets that we put on the air on 7 Mhz talking between "James One" and "James Two" - and the paranoia upon seeing a GPO "Radio-detector van" prowling the neighbourhood after school one day (grin!) but that is another episode to come later...

So for now, here is installment number one, unedited version:  
I will make the next edition more readable!

= = = = =

David - I just now re-read thos message from you and realized who you are once I saw the callsign G3UUR at the bottom!

I know you from CAMBRIDGE! You are one of the few that I remember reasonably well. Of course I remember my employer, G2PU!

And my mentors G3RFP, Fred, and Allan G3WUW who is still with us.

I would love to correspond with you a little about the old days and see how much we can both remember. My earliest memories include:

1963 or 64 going to visit the station of G3RFP, Fred who at that time worked in Technical Publications at Marshalls (where my dad was a draughtsman/design engineer) - Several Saturday mornings spent at Fred's house watching him run 10 watts of AM on Top Band with the local roundtable group.

G3WUW taught me the morse code with a one transistor phase shift oscillator on the steps of our school at the County High School for Boys as it was then, during lunch breaks etc.! He lived in OVER, and I lived in Cottenham. I made trips to his house in OVER on my bike, and also to Willingham to the SWL shack of David Gyp.

Allan and I also built some equipment for the 6 MHz CCF Net in those days, in conjunction with some pals at the Lys School (Sp?) using things like 6AG7s and 807s. Our callsign was WHISKEY LIMA. I can remember hearing him BELLOW the callsign into a carbon microphone on the old 19 set at the County after school one day.

With about 500-600 volts on the anode of the poor old ceramic base 807 glowing red hot! Oh and the power was from a dynamotor! The homebrew 807 rig came later. I did most of the construction on the darn thing, and the best I remember it DID actually work.

I went numerous times to the Cambridge and District Amateur Radio Club in those days also, and learned a great deal from the lectures there. It was a LOT of fun.

= = = = =

Additional notes:

MANY British amateur built their own equipment in those days or used military surplus. There was a LOT of that around in the 1960s still! And it was VERY cheap indeed.

A lot of the guys used SCR-522 rigs on 2 meter AM, or if they were wealthy, had a PYE business band radio converted to 2m AM.

There was no commercial/public service FM on VHF in Britain in the 1960s that I am aware of - it was all AM, a wonderful mode if you like the sound of warm, hi-fi, audio!

More recollections soon.

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73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA  
bry@mnsinc.com

\*\*\* See the great ham radio resources at:  
<http://www.mnsinc.com/bry/>

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Date: Wed, 23 Oct 1996 11:20:14 +0000  
From: "Brian Carling" <bry@mnsinc.com>  
To: glowbugs@theporch.com  
Subject: Re: SAQ Test on 17.2 kHz.  
Message-ID: <199610231817.0AA24626@user2.mnsinc.com>

HEY! It's a reply from AF4K!

> >15.1 kHz HWU Lebinc, France  
> >16.0 kHz GBR Rugby, England  
> >18.1 kHz UMS Former USSR  
> >19.6 kHz GBZ Crigion, Wales  
> >21.1 kHz 3SB PRC  
> >23.4 kHz NPM Lualualue, Hawii  
> >24.0 kHz Cutler, Maine (I could have copied this one with a crystal  
> >set, loud!)  
> >  
> >But, alas these are not historic stations.  
> >  
> >Hope someone was able to copy SAQ and get a good recording.  
> >  
> >73 Bob w4aos@aol.com

Bob I am curious. WHAT in the world are you using to copy these VVLF signals from around the world?

I am astonished to hear that you are getting them!

I can't even get ONE longwave BC band signal from ANYWHERE!

Maybe I am using the wrong radio/antenna!  
Actually what I have now is probably WORSE.

I used to have a SONY ICF-2010 and longwire.

With that I could get many many aero beacons from the USA on the  
200-500 kc. range, but this VVLF stuff blows my mind!  
73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA  
bry@mnsinc.com  
\*\*\* See the great ham radio resources at:  
<http://www.mnsinc.com/bry/>

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Date: Wed, 23 Oct 1996 20:46:30 GMT  
From: bratcher@worldnet.att.net (Robert M. Bratcher Jr.)  
To: glowbugs@theporch.com  
Subject: Recieving tubes for transmitting?  
Message-ID: <326e81ae.76945952@NETNEWS.WORLDDNET.ATT.NET>

Which recieving tubes can be used for transmitting also?  
I've done it with a 6L6WGB, a 1U4 & a 3A5.  
Which tubes make good RF amplifiers? I'm not expecting a lot of power  
maybe 50 watts max. I've heard some sweep tubes can do up to maybe  
200W in CW or SSB service. I remember seeing a magazine article using  
a pair of 50C5's. Also heard of using 45 tubes but not sure what they  
would put out.

-----  
Date: Wed, 23 Oct 1996 14:29:30 -0700  
From: jeffd@coriolis.com (Jeff Duntemann)  
To: glowbugs@theporch.com  
Subject: A lesson learned...  
Message-ID: <1.5.4.32.19961023142526.00aed9ec@ntserver.coriolis.com>

Hey gang--

Last night I breadboarded the BFO portion of my 6U8 superhet receiver, and  
it taught me (or RE-taught me) something important. The circuit is a simple  
455 kc Clapp model, and there's only about five components in the whole  
silly thing. Nonetheless, after checking it three times it still didn't  
oscillate, and it was drawing too much current.

Now, triodes LIKE to oscillate; they've got BORN TO RAISE HELL tattooed on  
their little foreheads. So this was a puzzler. It looked just like a  
grid/plate short to me, but I swapped a known-good tube and got identical  
non-results.

I pulled the tube and checked all the components. In doing so, I discovered  
a short in the breadboard socket between pins 1 (plate) and 9 (grid). This  
sort of assembly has proven very useful; it's a 2" square of PC board  
divided into 9 "pie slices" with a Moto-Tool. An ordinary 9-pin socket is

then soldered to the middle of the square such that one socket tab goes to each "pie slice." I had incompletely parted the copper between the slices for pins 1 and 9.

I'm a kind of a fanatic about checking each part individually before I solder it into a circuit. I did so this time as well. But I didn't check the breadboard socket for shorts, because it wasn't a "part" in the sense we often think of them. Sockets--especially unused sockets--don't go bad, right? But this was a little more than just a socket, and I lost myself half an hour of bench time by not checking it as thoroughly as I always check the resistors and caps.

Lesson: Test EVERYTHING before you solder it into a circuit. EVERYTHING!

Now, let's see how long it takes me to forget again...

--73--

--Jeff Duntemann KG7JF  
Scottsdale, Arizona

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Date: Wed, 23 Oct 1996 18:47:57 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: bratcher@worldnet.att.net  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Recieving tubes for transmitting?  
Message-ID: <9610232248.AA102885@csemail.cropsci.ncsu.edu>

>  
> Which recieving tubes can be used for transmitting also?  
> I've done it with a 6L6WGB, a 1U4 & a 3A5.  
> Which tubes make good RF amplifiers? I'm not expecting a lot of power  
> maybe 50 watts max. I've heard some sweep tubes can do up to maybe  
> 200W in CW or SSB service. I remember seeing a magazine article using  
> a pair of 50C5's. Also heard of using 45 tubes but not sure what they  
> would put out.  
>

Bob.... this is an interesting question. It begs two answers.

- 1) any receiving tube of proper function can be used for transmitting AND VICE VERSA. It really does not matter as long as ratings are not overdone, too much. An '01A makes a fine transmitter as a Hartley oscillator. An 833 makes a fine regen detector and audio stage. .... etc. Generally, you want to rate the tube at the power required

for the stage under consideration... with some safety factor (many times a factor of 2 or 3 is plenty). Thus a 6L6 rated at 10 watts is a good choice, although they have been run to 150 watts by some lusty folks. An 807 rated at 35-50 watts is a good choice in that power class. A 6V6 rated at 5 watts is a good choice in that power class. A 3A5 rated at 1 watt is a good choice in that power class..... etc. Hint..... tubes last longer and run cooler if you don't overrate them, and try to get 150 watts out of a 6L6.

- 2) certain tubes make better transmitting tubes, by convenience. For example, there are about 25 directly interchangeable tube types that will work in the above mentioned 6L6 socket (6G6, 6K6, 6L6, 6V6, 6W6, 6Y6, and a host of others of various commercial and industrial rating classes). If you design it for 160/80/40 use, they all will work, just fine. If you push 10 or 6 meters, then you need to choose more carefully. Another example is the 50watt class tube. You could use a 203, or a 211, or an 845, or an 807, or an 832, or an 837, or a 6146 or a 6XXX sweep tube pretty much interchangeably, in rf amplifier service. But, for good reasons of convenience, you might prefer to use a 6146 (cheaper, more plentiful, easier to neutralize, etc.).

Thus, it really boils down to.....`it doesn't matter much what tube you use, as long as you keep it in its ratings envelope for its class of service.' Most receiver or audio tubes can be used at RF up to about 40 meters with little worry. Above that frequency, some tubes will require underrating to keep from burning them up. A good rule of thumb is to underrate your tubes to about 3/4 of CCS RF (Continuous Class Service .... read AM) and they will be very happy (as well as your tube budget). ICAS RF (Intermittent Class Amateur Service) usually pushes the tube more than I like, but that is OK for short duty cycle applications like CW or SSB.

For 50 watts I would definitely stay AWAY from sweep tubes, unless someone gave me a box of 100 each to play with. I would much prefer and better trust the good ol' 6146. A pair of 807's does well at 50 watts. Likewise a pair of 1625's. Don't push the 807 class tube (807 and 1625 and 837) to much above 35 watts and they will run forever. The 6146 is much more forgiving at 50-65 watts. Above 75 watts, even it will get a little tempermental.

More emphasis should be placed on the selection of proper rf circuitry to handle the power you are trying to generate. Good choice of the proper neutralization, proper biasing, proper bypassing, proper plate/screen voltages and currents are much more important than the particular type of tube used.

In the case of exotic rigs like self excited oscillator transmitters, it is good to build a safety factor of 5 to 10 into the design. Thus, use a tube of 50 watt class (e.g., a 211) at a power input of 10 watts in



Hartley service, and it will be very stable, run cool, and not be so subject to drift or chirp under heavy load. The 6146, on the other hand, can run with a xtal at 50-75 watts input quite well. That type of design factor is often overlooked when folks try their hands at exotic rigs like Hartley oscillators or Dow oscillators. A 50 watt Dow oscillator should use a tube like an 813 rather than a 6146. Dow's oscillator is the classic high power electron coupled oscillator (he designed the ECO circuit back in 1932). Yet, you could use the Dow oscillator at 50 watts with an 813, followed by a pair of 813's for output to 250-500 watts. The navy did this sort of thing using 860's and 861's back in WWII and commercial folks did it as early as the late 1920's in RMCA designs. In amateur use, that is much better handled by adding an extra stage such as a 6F6 or 6V6 or 6L6 Dow electron coupled oscillator followed by a 6146 or 807 buffer, followed by one or a pair of 813's for output. One 813 will idle nicely at 50 watts output with about 500 volts on the plate, and run for 20 years. You could economize the design and use a 6146 oscillator at 300 volts on the plate, followed by a 6146 buffer with 600 volts on the plate followed by a pair of 813's at 600 volts on the plates and run a cool and comfy 50-200 watts input by ditting a variac on on the plate transformer between 50% of 110vac to 100% of 110vac. The oscillator stage could be VR tube regulated with 105 volts on the screen and 315 volts on the plate (3 VR-105's) if desired for greater stability, although that is usually not required on 160/80 meters. On 40 it probably is required. Thus several kinds of tubes could be used, but convenience would dictate certain choices for generic playing. If you were building a period rig, then use period tubes. If you were building a 50's/60's style rig, then use the later tubes for convenience and ease of finding them in the junk box or the hamfest boxes.

Good Luck, and hope I have not bored anyone. Others will have their preferred tubes to use, but I suggest sticking with common proven types unless you need to do otherwise. Then keep within ratings by appropriate margins.

73/ZUT DE NA4G/Bob UP

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Date: Wed, 23 Oct 1996 18:24:42 -0400  
From: "Gregory S. Raven" <gsraven@cris.com>  
To: rdkeys@csemail.cropsci.ncsu.edu  
Cc: glowbugs@theporch.com  
Subject: Re: QTC NIL FM SAQ ANI OTR OP CPI SAQ IMI  
Message-ID: <2.2.32.19961023222442.006ab430@pop3.cris.com>

At 11:34 AM 10/23/96 -0500, you wrote:

>Well nil luck here on the SAQ copy either, although on 600M KFS was  
>QSA 4 in NC so the mf/lf band was open. Several of the digital stns

>were eminently loud here even amid the misc RFI. Can anyone check with  
>the fellows at Grimeton on in the Swedish ham community to see if there  
>were problems rotating that big baby up to speed?

>

>We Rrrreeaaaallllyy dooooooo need to hear that machine purr one more time.  
>After all, it is the world's largest boatanchor.

Actually it is the world's oldest operating solid-state transmitter and is  
technically a forbidden subject !

73 de Greg KF5N, landline FA  
Collector of Landline Telegraph  
Secretary/Treasurer TP Chapter MTC  
Visit "Telegraph Lore"  
<http://www.cris.com/~Gsraven/index.shtml>

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Date: Wed, 23 Oct 1996 18:40:01 -0500  
From: "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>  
To: rdkeys@csemail.cropsci.ncsu.edu  
Cc: glowbugs@theporch.com  
Subject: Re: Recieving tubes for transmitting?  
Message-ID: <1.5.4.32.19961023234001.006a5d64@postoffice.worldnet.att.net>

You didn't bore me at all! Learned some interesting things from you.  
Just thinking about building again so I asked the tube question.  
May build a small rig just to test some tubes with it.  
Your 6L6 remarks remind me of the QST QSL-60 crystal oscillator I built that  
was supposed to put out 60 watts. I didn't have big crystals and kept  
cracking several I had trying to get that 60 watts! Gave up after about a  
week & took it apart for the junkbox. Just didn't have those "hefty"  
FT-243's or other large sizes at the time.  
150 watts out of a 6L6, G, WBG or whatever? I don't see how without burning  
it up!

Robert M. Bratcher Jr.  
E-mail to:  
bratcher@worldnet.att.net  
Record collector, 8mm, super 8, 16 and 35mm Film collector.  
I like old radio's too.  
Collins, Hallicrafters, National & Hammurland are my Favorites!

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Date: Wed, 23 Oct 1996 17:09:38 +0000  
From: "Brian Carling" <bry@mnsinc.com>  
To: bratcher@worldnet.att.net, glowbugs@theporch.com  
Subject: Re: Recieving tubes for transmitting?  
Message-ID: <199610240006.UAA04968@user2.mnsinc.com>

HEY! It's a reply from AF4K!  
On 23 Oct 96, Robert M. Bratcher Jr. wrote:

> "hefty" FT-243's or other large sizes at the time. 150 watts out of  
> a 6L6,G, WBG or whatever? I don't see how without burning it up!  
>  
> Robert M. Bratcher Jr.

Yeah I thought the same when I read Boatanchor Bob's post saying that!

We used to use FOUR 6L6GCs to produce 100 watts of audio in guitar amplifiers. Now I know you can get better efficiency out of a Class-C RF amp stage, but 150 watts OUTPUT. Let's see. You would have to have about 200 watts PLATE INPUT to ONE 6L6 to get that!  
Sounds awfully dangerous!

My oh my - 1000 volts at 200 mA for example?

I don't THINK so, Bob! :-)  
73 from Radio AF4K / G3XLQ in Gaithersburg, MD USA  
bry@mnsinc.com  
\*\*\* See the great ham radio resources at:  
<http://www.mnsinc.com/bry/>

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Date: Wed, 23 Oct 1996 21:45:45 -0400  
From: W4AOS@aol.com  
To: glowbugs@theporch.com  
Subject: Re: LF'ing  
Message-ID: <961023214543\_217017177@emout07.mail.aol.com>

In a message dated 96-10-23 12:13:50 EDT, you write:

<< Howdy: Thanks for the info on the list regarding  
rge VLF stations heard while trying for SAQ. You  
are receiving very well. Would you please share  
with us your receiving setup; antennas, RX, RX  
bandwidth and any other tips ? I'm sure the list  
would be very interested. thanks & 73, Ed K2MP >>

Sure Ed, my setup was not fancy and was intended to be only temporary so it

involved a lot of clip leads and circuits dangling in the air, but it did work fairly well except for the dratted interference on the only frequency which counted.

I decided the best thing to do was to utilize my normal short-wave communications receiver as much as possible, so I could take advantage of things like noise blankers, crystal filters, synthesized tuning with digital display etc. So I used my ICOM R-71A, (yes its sand state) but the method is applicable to Boatachor RX's as well. I built an up converter which accepted the 17.2 kHz signal and converted it up to approximately 5.8 MHz. The output of the converter then went to the ICOM.

The antenna was a square loop about 50 inches on a side mounted outside on an 8 foot 2X4. It consisted of 40 turns of #22 stranded wire with plastic insulation, nothing fancy. I stopped at 40 turns because this gave me an inductance of about 7.5 mHy which I felt I could tune reasonably well, it required about 0.011 mfd to tune, and I was tired of walking around the antenna frame with the wire. I felt tuning the antenna was important because the output voltage (not power of course) of the antenna goes up approximately by the antenna Q when it is tuned (this also means that a high impedance amplifier must be used, which is no big deal at these frequencies). I used twisted pair wire, similar to that used for telephones for feed line from the antenna to the bench, you can't use coax because a balanced line is needed. The antenna tuning was done inside at the bench at the feed line.

To maintain loop balance I used a capacitor from each side of the feed line to ground, this required each capacitor to be double the value required to tune (i.e. 0.022 mfd, since they are in series as far as the loop is concerned. These capacitors help to enforce the balance of the setup by swamping out any small stray unbalanced capacity. This seemed to work well as the loop tuned ok, the signals rising as it was brought into resonance. I was fortunate to have two capacitance decade boxes to use to do this tuning, since it needs too much capacity to use normal air variables. I didn't measure the Q of the loop, but it needed retuning if I moved more than 3-4 kHz away, so Q was fairly good.

The balanced feed line then went into a preamplifier which had about 27 dB of gain. I'm sorry to say that it was solid state, although it could just as easily have been made with tubes. I was short of time, and it is much faster to build transistor circuits in thin air 3 - D type construction than it is tube circuits. I used a differential pair of MPF-102's in the input circuit of the preamplifier to preserve the balance and to provide a high impedance.

There is nothing tuned in the preamplifier its just a normal amplifier similar to any audio amplifier. The output of the preamplifier was coupled to the input of the converter with a 900 pf capacitor via a clip lead.

The converter consisted of a 6J5 crystal oscillator at about 5.8 MHz, the frequency is not critical, I happned to have a lot of these crystals. The Mixer is a 6SA7. The local oscillator is coupled via a 7-45 pf trimmer which

was adjusted to give proper drive to the 6SA7 per the tube books. The 6SA7 signal grid did incorporate a tuned circuit, I used a 77 mH R.F. choke as the inductor with appropriate variable capacitors to get resonance at 17.2 kHz.

I found that the R. F. chokes had Q's of 20 to 50 at 17.2 kHz and so made good inductors. The plate circuit of the 6SA7 used a parallel tuned circuit at 5.8 mhz and a 2 turn link provided output to the main station receiver.

I did find that I had overlooked one thing when I started testing. The desired signal is of course only 17 kHz away from the local oscillator, which meant that there was a whopping big (several volts) 5.8 mhz signal due to the local oscillator, only 17 kHz away from the desired signal. I was able to bring this down to about a half volt buy using another crystal at the same frequency as a parallel tuned trap placed between the 6SA7 plate and the output tuned circuit. I tuned the crystal for best rejection using another 7-45 pf cap in parallel. I recommend the use of a balanced mixer to alleviate this problem and would do so if I had it to do over again.

So thats the setup, it didn't look pretty, but it did work ok, and I guess the fun is in the trying, not in just the results.

Sorry for the long, post, guess I got carried away.

73 Bob w4aos@aol.com

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Date: Wed, 23 Oct 1996 21:21:29 -0500  
From: "Robert M. Bratcher Jr." <bratcher@worldnet.att.net>  
To: bry@mnsinc.com  
Cc: glowbugs@theporch.com  
Subject: That 6L6 tube  
Message-ID: <1.5.4.32.19961024022129.0069d840@postoffice.worldnet.att.net>

At 05:09 PM 10/23/96 +0000, you wrote:

>HEY! It's a reply from AF4K!

>We used to used FOUR 6L6GCs to produce 100 watts of audio in guitar  
>amplifiers. Now I know you can get better efficiency out of a Class-C  
>RF amp stage, but 150 watts OUTPUT. Let's see. You would have to have  
>about 200 watts PLATE INPUT to ONE 6L6 to get that!

>Sounds awfully dangerous!

>

>My oh my - 1000 volts at 200 mA for example?

>

>I don't THINK so, Bob! :-)

Like I said, Me either! Never used any 6L6 type for RF other than that

QSL-60 project. Had a stereo kit amp given to me in my 20's that had 7591a's with 20 watts per channel out. I modified it one weekend for the 6L6WGB's to replace the original 4 output tubes. After some work I wound up with 50 watts per channel. Of course I had to replace the driver tubes too and do a lot of modifying to finally get clear sound but hey, I learned some things about class A audio amplifiers. Years later (at 37) I gave it to my housekeepers 14 year old son (she cleans once a week) as part of a CD/cassette system I scrounged for & put together. Lets put it this way, The kid likes his loud stereo!

Robert M. Bratcher Jr.

E-mail to:

bratcher@worldnet.att.net

Record collector, 8mm, super 8, 16 and 35mm Film collector.

I like old radio's too.

Collins, Hallicrafters, National & Hammurand are my Favorites!

-----  
Date: Thu, 24 Oct 1996 02:31:43 -0600 (MDT)  
From: toyboat@freenet.edmonton.ab.ca  
To: KA9EGW@aol.com  
Cc: Multiple recipients of list <glowbugs@theporch.com>  
Subject: Re: Where is it?? (fwd) (6T9er)  
Message-ID: <Pine.A41.3.95.961024021946.29284C-1000000@fn2.freenet.edmonton.ab.ca>

On Tue, 22 Oct 1996 KA9EGW@aol.com wrote:

> I know the 6T9 is just a 6C4 and some pentode in a single envelope; might not  
> a 6C4 and 5763 work as well?

Yes. Funny you should mention that.

My sole tube manual is too old for the 6T9 so I can't speculate there.

However, I have a photocopied QST MOPA transmitter article, using a 6C4 Pierce oscillator and 5763 amplifier.

(QST, October 1968, Page 22, By Don Mix, W1TS)

It runs 12 Watts input on 40 + 80m from a 240VDC supply.

\*\*\*\*\*  
\*\* Shane <toyboat@freenet.edmonton.ab.ca> \*\*  
\*\*\*\*\*  
\*\* Edmonton, Alberta, Canada \*\*  
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Date: Thu, 24 Oct 1996 09:04:23 -0400  
From: "Robert Fowle (KC8DBC)" <hammarlund@jacksonmi.com>  
To: boatanchors@theporch.com  
Subject: RCA PARTS LIST UPDATE  
Message-ID: <2.2.16.19961024091057.1bdf84de@fvmail.com>

If you like to receive a copy of this list, email me and request it.  
it's about 129 lines long, so i won't post the whole thing here...  
for those who don't know, i recently parted out an RCA BTA 5T  
5 kw a.m. BC xmtr...and have many parts for building....

thnak you

=====]-[->

Robert Fowle KC8DBC  
The HAMMARLUND Historian  
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Jackson, Mich. 49202-1946  
E-mail: hammarlund@jacksonmi.com  
Web Page: <http://www.jacksonmi.com/hammarlund>

HAMMARLUND LITERATURE WANTED  
WANTED: MANUALS FOR ANY MAKE RADIO EQUIPMENT

=====]-[->

Boatanchors: the list: listproc@theporch.com.....subscribe boatanchors  
<your name>  
the news group: rec.radio.amateur.boatanchors  
news group: ham-am@Listserv@ucsd.edu....Body: add ham-am

-----  
Date: Thu, 24 Oct 1996 10:29:03 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: bratcher@worldnet.att.net (Robert M. Bratcher Jr.)  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Recieving tubes for transmitting?  
Message-ID: <9610241429.AA104308@csemail.cropsci.ncsu.edu>

> 150 watts out of a 6L6,G, WBG or whatever? I don't see how without burning  
> it up!

The trick, as I have heard it, secondhand, is to invert the metal shell

6L6 in a gallon can of transformer oil for heat dissipation. Then it will run 750 volts at 200ma = 150 watts in ICAS-EXTREME service, if you dare. I have never done this, but am sort of tempted to try. It sounds like a project for a cold winter's night. Anyone in the crew ever actually done it? Anyone else ever heard the technique used? Surely my mind is not playing tricks on me.....

Several commercial tube types had a large metal cap (glass tube 18 inches high and the cap about 2 inches in diameter and 12 inches high) that was designed to be run inverted in water cooling jackets for 5kw and 10kw class tubes. My OM used such tubes in the Army back in the 30's in fixed transmitter installations. I gave one to a list member for his tube collection. Maybe the same could be done for the metal jacket on the 6L6. The basic need is to remove the heat somewhat faster than it is generated. As long as tube elements don't melt or deform and short, or the interelectrode distances be too small for the voltages applied, you could run a tremendous amount of power out of theoretically any sort of tube. With ambient air radiative cooling, you are stuck to the published ratings (with a slight fudge factor built into them). With forced air cooling, you can usually overrate any ambient air cooled tube --- how much --- who knows. I have a good friend that I palled around with as a novice that used to run a breadboard kilowatt on 80 meter CW using an arc-5 as the vfo/driver and four each 4CX250B's as the amplifier (run from a pole pig transformer). He used ONLY ambient radiative cooling on the tubes, and they worked just fine. The thing was on a plywood board with the pole pig underneath. Even EIMAC published ratings (little known) for using the 4CX250 and 4X150 series tubes in ambient air cooling. As long as the tube seal temperatures were not exceeded, they worked fine. The point is that tube ratings can be exceeded greatly, if you dissipate the generated heat. The metal shell 6L6 is the premier classic example. Commercial use of sweep tubes in amateur amplifier applications is another example. Such sweep tubes are usually run rather more than their specifications for CCS service allow. Ever wonder why folks need to replace them so often?

Fred Sutter's QSL series culminated in a 100 or 120 watt version using a pair or a brace of air cooled 6L6's, if my memory is correct. If my memory is not correct, it may have been written up in another article by someone else about 1948 or so after Fred was gone. Maybe we should get together an annotated bibliography of Sutter's QSL series.

73/ZUT DE NA4G/Bob UP

-----  
Date: Thu, 24 Oct 1996 10:35:17 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu



To: bratcher@worldnet.att.net  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Recieving tubes for transmitting?  
Message-ID: <9610241435.AA104322@csemail.cropsci.ncsu.edu>

> Your 6L6 remarks remind me of the QST QSL-60 crystal oscillator I built that  
> was supposed to put out 60 watts. I didn't have big crystals and kept  
> cracking several I had trying to get that 60 watts! Gave up after about a  
> week & took it apart for the junkbox. Just didn't have those "hefty"  
> FT-243's or other large sizes at the time.

Radiomarine gear typically used 807's as xtal oscillators, but they ran  
HUGE R-1 sized xtals that have blanks about 1 inch square. FT-171 size  
xtals will usually work in such 50 watt oscillators. Smaller sized xtals  
are subject to fracture.

The typical amateur application of FT-243 or the CR1 or similar sized  
xtals often used a series dial lamp (forget the number right off) that  
would act as a fuse and blow if the xtal current got too high, hopefully  
preventing fracture. Also, you can use the brilliance of the bulb as  
an indicator of where to limit max safe power in the rig.

73/ZUT DE NA4G/Bob UP

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Date: Thu, 24 Oct 1996 11:02:44 -0400 (EDT)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: fbsnyder@mail04.mitre.org (Forrest B. Snyder Jr)  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: Recieving tubes for transmitting?  
Message-ID: <9610241502.AA104416@csemail.cropsci.ncsu.edu>

>  
> You wrote:  
> "Maybe we should get together an annotated bibliography of Sutter's  
> QSL series."  
>  
> I'm all for it. I'd also like to be able to order reprints since the nearest  
> library of old QSTs that I know about is about 65 miles away around the  
> infamous Beltway!

OK, my issues are incomplete, but I have copied a few of them for my working  
papers.

Does anyone have the QST index on-line? We might be able to get a good start  
that way. I understand it is on CDRom, or something like that. Anyone know

anyone at ARRL that could run such a search through? If not, I will try to visit the stacks sometime this week or next, as time permits.

Bob/NA4G

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Date: Thu, 24 Oct 1996 10:53:44 -0400  
From: Jim Barnes <barnes29@chelsea.ios.com>  
To: glowbugs@theporch.com  
Subject: Homebrew Mailing Lists  
Message-ID: <1.5.4.16.19961024095300.1b5f510e@chelsea.ios.com>

Gents--

Although Glowbugs has cornered the market on tube-type homebrewing, I have often wondered if there is a solid-state (or hybrid) counterpart mailing list. Does anyone know of any other homebrew mailing lists that are not necessarily restricted to QRP power levels?

Jim N4YOK

\*\*\*\*\*  
Jim Barnes -- barnes29@chelsea.ios.com

"Out on that Information Superhighway---I'm riding a moped."  
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End of GLOWBUGS Digest 330  
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